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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,562	12/18/2001	David R. Bartkowiak	01-178	2677

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PEORIA, IL 616296490

EXAMINER

KIM, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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3752

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/023,562	Applicant(s) BARTKOWIAK ET AL.	
	Examiner Christopher S. Kim	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 12-19, 21-23 and 25-30 is/are pending in the application.
 4a) Of the above claim(s) 19, 21-23 and 25-30 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 10 and 12-18 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The response filed August 4, 2006 is acknowledged.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Applicant requests clarification for the basis of the restriction requirement between the process and the apparatus for its practice. Applicant asserts that the method claims have been amended to recite "a plunger" making the restriction requirement moot. Applicant is invited to review MPEP 806.05(e) for the basis and propriety of the restriction requirement. The ground for the restriction requirement is 35 U.S.C. 121. See also 37 CFR 1.141 and 37 CFR 1.142. MPEP 806.05(e) provides for the following guideline:

Process and apparatus for its practice can be shown to be distinct inventions, if either or both of the following can be shown: (A) that the process as claimed can be practiced by another materially different apparatus or by hand; or (B) that the apparatus as claimed can be used to practice another materially different process.

The "plunger" was cited in the restriction requirement mailed on December 30, 2005 as an example in this case, but it is not the only example. Process claim 19 can be practiced by another materially different apparatus which does not require a "fuel injector," a "lower outer body" or a "needle valve." Process claim 25 can be practiced by

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another materially different apparatus which does not require a "lower body," a "needle valve" or a "cartridge valve."

4. Claims 19, 21-23, 25-30 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on February 2, 2006.

The restriction requirement was made Final in the Office action mailed on May 1, 2006.

Claim Rejections - 35 USC § 103

5. Claims 10, 13, 14, 15, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wich (4,408,718) in view of Jones, Jr., et al (3,449,815).

Wich discloses a fuel injector comprising:

- a lower outer body 20;
- a tip 26;
- at least one orifice 97;
- a fuel passage 94;
- a needle valve 95;
- an upper body 10 having a bore 14a;
- a plunger 15;
- a fuel pressurization chamber 19;
- a cartridge valve assembly 11;

a first fluid bore 52;

a second fluid bore 51.

Wich fails to disclose a high pressure seal. Jones discloses a high pressure seal 16 in passage 15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided Jones' seal 16 in the passage 51, 52 of Wich for added strength (Jones, column 3, lines 6-17).

Regarding claims 14 and 15, Jones discloses, in column 3, lines 30-40, the dimensions of the sleeve but does not specifically disclose that the sleeve has a wall thickness of 1 mm. Jones discloses that the wall thickness is 0.125 inch (3.175 mm) but that the dimension is an example and not meant to be limiting. Providing a wall thickness of 1 mm or less is an optimization of workable ranges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a wall thickness of 1 mm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

6. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wich (4,408,718) in view of Kenny (959,546).

Wich discloses a fuel injector comprising:

a lower outer body 20;

a tip 26;

at least one orifice 97;

a fuel passage 94;

- a needle valve 95;
- an upper body 10 having a bore 14a;
- a plunger 15;
- a fuel pressurization chamber 19;
- a cartridge valve assembly 11;
- a first fluid bore 52;
- a second fluid bore 51.

Wich discloses a seal 124 but Wich's seal is an O-ring that sits in groove 125 rather than a cylindrical sleeve that fits in the first and second fluid bores. Kenny discloses a cylindrical sleeve seal 4 press fitted into tube sections 1 and 2 (Kenny, page 1, lines 85-92). It would have been obvious to a person having ordinary skill in the art at the time of the invention to have replaced Wich's O-ring seal 124 with Kenny's sleeve seal 4 to provide a fluid seal and maintain an in-line passage (Kenny, page 1, lines 35-42).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda (5,524,825) in view of Jones, Jr., et al (3,449,815).

Ueda discloses a fuel injector comprising:

- a lower outer body 4;
- a tip 45;
- at least one orifice (inherent);
- a fuel passage 47;
- a needle valve 45a;

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- an upper body 10 having a bore 3;
- a plunger 37;
- a fuel pressurization chamber 33;
- a cartridge valve assembly 5;
- a first fluid bore 18;
- a second fluid bore (section of passage 18 in cartridge valve assembly 5).

Ueda fails to disclose a high pressure seal. Jones discloses a high pressure seal 16 in passage 15.).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda (5,524,825) in view of Jones, Jr., et al (3,449,815) as applied to claim 10 above, and further in view of Campion et al. (6,802,457).

Ueda in view of Jones discloses the limitations of the claimed invention with the exception of pressures in excess of 20,000 PSI, i.e., exposing the cylindrical seal to pressures in excess of 20,000 PSI. The 20,000 PSI is merely a working condition of the fuel pressure in the fuel injector. Campion teaches that it is common for fuel injectors to mechanically compress liquid fuel in excess of 20,000 PSI (Campion, column 1, lines 25-38). Ueda's fuel injector is of the type that mechanically compresses liquid fuel using plunger 37. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have operated the injector of Ueda in view of Jones where the fuel pressure exceeds 20,000 PSI for injection into engines operating at such pressures as disclosed by Campion.

Response to Arguments

9. Applicant's arguments filed August 4, 2006 have been fully considered but they are not persuasive.

Applicant argues Wich does not disclose a high pressure seal. Applicant's argument is not commensurate in scope with the claimed invention. In claim 10, the term "high pressure seal" is merely a name for the "seal." Claim 10 neither defines any operating pressures of the fuel injector nor the working environment of the seal. Claim 16 is evidence. Claim 16 limits the seal to be exposed to pressures in excess of 20,000 PSI.

Applicant argues that Jones' sleeve 16 does not provide a sealing function. Applicant's argument is not persuasive. Jones' sleeve 16 in combination with the adhesive (column 3, line 16) inherently provides a seal. Additionally, one of ordinary skill in the art would recognize that one of Jones' is to deliver fuel through passage 15 and any fuel leakage through between surfaces 18 and 19 is undesirable.

Applicant argues that there is no motivation to modify Wich with the teachings of Jones. See Jones, column 3, lines 6-17, where Jones disclose that sleeve 16 provides added strength. This motivation was cited in the previous Office action.

Applicant argues that it would not be obvious to combine the teachings of Kenny with the injector of Wich because Wich's screws 12 normally provide for alignment. Applicant's argument is not persuasive. Wich does not disclose screws 12 providing any alignment function. Applicant's assertion is mere speculation. Wich discloses, in column 2, lines 49-56, that screws 12 secure body 10 and body 11 together. Even if

screw 12 provided an alignment function, which does not prohibit providing an additional alignment feature. One of ordinary skill in the art would recognize that an alignment feature of Kenny's seal would assist in alignment of the mounting holes for screws 12, making it easier to assemble body 10 and body 11.

Applicant argues that there is no motivation to combine the teachings of Jones with the injector of Ueda. See Jones, column 3, lines 6-17.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

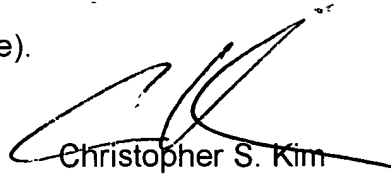
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Kim whose telephone number is (571) 272-4905. The examiner can normally be reached on Monday - Thursday, 6:30 AM - 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on (571) 272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher S. Kim
Primary Examiner
Art Unit 3752

CK